SIMBa

BGSMath
BARCELONA GRADUATE SCHOOL OF MATHEMATICS

Seminari Informal de Matemàtiques de Barcelona

***Speaker*:** Jaume de Dios
University: UCLA.

Date: Wednesday, October 21st, 2020.
Schedule: 12:00, *virtual coffee break*; 12:20, talk.
Place: Zoom (the link will be posted on our website).
Language: English.

Title: Decoupling and applications: from PDEs to Number Theory.

Abstract: Decoupling estimates were introduced by Wolff [1] in order to improve local smoothing estimates for the wave equation. Since then, they have found multiple applications in analysis: from PDEs and restriction theory, to additive number theory, where Bourgain, Demeter and Guth [2] used decoupling-type estimates to prove the main conjecture of the Vinogradov mean value theorem for $d > 3$.
In this talk I will explain what decoupling estimates are, I will talk about its applications to the Vinogradov Mean Value theorem and local smoothing, and I will explain the main ingredients that go into (most) decoupling proofs.

[1] Wolff, T. (2000). Local smoothing type estimates on L_p for large p. Geometric & Functional Analysis GAFA.
[2] Bourgain, J., Demeter, C., Guth, L. (2016). Proof of the main conjecture in Vinogradov's mean value theorem for degrees higher than three. Annals of Mathematics, 633-682.

About us: *SIMBa* is a youth mathematics seminar organized by graduate students in the Barcelona area. It is aimed towards graduate and last course undergraduate students. Our goals are divulging the knoweledge from different branches of mathematics for those interested and promote networking between the attendants.
This seminar is backed by the Faculty of Mathematics and Computer Science at Universitat de Barcelona, Faculty of Mathematics and Statistics at Universitat Politècnica de Catalunya, the Department of Mathematics from Univesitat Autònoma de Barcelona, CRM, IMUB and BGSMath.

Fore more information, visit at `www.ub.edu/simba/en/`.

If you have any doubt or comment do not hesitate to contact us by sending an email to ***seminari.simba@gmail.com***.